Reg.No. :

I.Answer all the questions.
II.Use blue pen only.
III.Question number 15 is compulsory.

Time : 01:30:00 Hrs

Total Marks : 85

Part-A

5 x 1 = 5

1) If $f(x)$ is an odd function then $\int\limits_{-a}^{a} f(x)dx =$

(a) 1   (b) 2a   (c) 0   (d) a

2) If $f(x)$ is an even function then $\int\limits_{-a}^{a} f(x)dx$ is

(a) $2\int\limits_{0}^{a} f(x)dx$ (b) $\int\limits_{0}^{a} f(x)dx$ (c) -2a   (d) 2a

3) $\int\limits_{-3}^{3} xdx$ is

(a) 0   (b) 2   (c) 1   (d) -1

4) $\int\limits_{-2}^{2} x^4 dx$ is

(a) $\frac{32}{5}$ (b) $\frac{64}{5}$ (c) $\frac{16}{5}$ (d) $\frac{8}{5}$

5) $\int\limits_{-\frac{\pi}{2}}^{\frac{\pi}{2}} sinxdx$ is

(a) 0   (b) -1   (c) 1   (d) $\frac{\pi}{2}$

Part-B

5 x 6 = 30

6) Evaluate the following using the properties of definite integral : $\int\limits_{-10}^{10} (4x^5 + 6x^3 + \frac{2}{3}x)dx$

7) Evaluate the following using the properties of definite integral : $\int\limits_{-2}^{2} (3x^2 + 5x^4)dx$

8) Evaluate the following using the properties of definite integral : $\int\limits_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin^2 xdx$

9) Evaluate the following using the properties of definite integral : $\int\limits_{-\frac{\pi}{2}}^{\frac{\pi}{2}} cosx \quad dx$

10) Evaluate the following using the properties of definite integral : $\int\limits_{0}^{2} x\sqrt{2-x} \quad dx$

Part-C

5 x 10 = 50

11) Evaluate the following using the properties of definite integral : $\int\limits_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{dx}{1+\sqrt{cotx}}$

12) Evaluate the following using the properties of definite integral : $\int\limits_{0}^{2} \frac{\sqrt{x}dx}{\sqrt{x}+\sqrt{2-x}}$

13) Evaluate the following using the properties of definite integral : $\int\limits_{0}^{\pi} x\sin^2 xdx$

14) Evaluate the following using the properties of definite integral : $\int\limits_{0}^{\frac{\pi}{2}} \frac{asinx+bcosx}{sinx+cosx}dx$

15) a)   Find the area of one loop of the curve $y^2 = x^2(1 - x^2)$ between $x = 0$ and $x = 1$.

(OR)

b)   Find the area of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.

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